

## SECTION 3 – ENVIRONMENTAL ANALYSIS AND CHECKLIST

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This Initial Study (IS) has been completed for the Project in accordance with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. The IS identifies site-specific conditions and impacts, evaluates their potential significance, and discusses ways to avoid or lessen impacts that are potentially significant. The information, analysis and conclusions included in this IS provide the basis for determining the appropriate document needed to comply with CEQA.

Based on the analysis and information contained herein, the IS shows that Project construction may have a significant effect on the environment; however, with revisions in the Project plans, identified in the IS as mitigation measures and agreed to by Three Rivers, potential impacts would be reduced to a less than significant level. The proposed pipeline will be installed 45 feet below the bed of the River; therefore, there will be no impacts to the bed of the River, and no changes to sediment cover would occur. Therefore, the CSLC concludes that an IS/Mitigated Negative Declaration (MND) is the appropriate CEQA document for the Project.

In the event of a pipeline leak, pressure valves would detect a leak in the pipeline, and valves on either side of the pipeline would automatically shut off. The pipeline would then be repaired or abandoned. Three Rivers would consult with the appropriate regulatory agencies during such an event prior to any repairs. Were a leak to occur, the gas would bubble in the water and dissipate into the atmosphere. No long-term significant impacts would be anticipated to result. As no impacts are associated with the long-term operation of the Project, long-term operations are not further discussed in this IS.

### 3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The evaluation of environmental impacts provided in Section 3.3 of this MND is based, in part, on the environmental impact thresholds provided by State CEQA Guidelines Appendix G. An impact assessment matrix is provided as part of the evaluation for each environmental issue area. The column headings for each impact assessment matrix are defined below.

- **Potentially Significant Impact.** This column has been checked if there is substantial evidence that a Project-related environmental effect may be significant. If there are one or more “Potentially Significant Impacts,” a Project Environmental Impact Report (EIR) would be prepared.
- **Less than Significant with Mitigation.** This column has been checked when the Project may result in a significant environmental impact, but the incorporation of identified Project-specific mitigation measures into the Project would reduce the identified effect(s) to a less than significant level.

- **Less than Significant Impact.** This column has been checked when the Project would not result in any significant effects. The Project's impact is less than significant even without the incorporation of a Project-specific mitigation measure.
- **No Impact.** This column has been checked when the Project would not result in any impact in the category or the category does not apply.

The environmental factors checked below in Table 3.1-1 would be potentially affected by this Project, involving at least one impact that is a "Less than Significant Impact with Mitigation," as detailed in Section 3.3. However, the Project would not result in any "Potentially Significant Impacts" that cannot be reduced to a less than significant level.

**Table 3.1-1. Environmental Issues and Potentially Significant Impacts**

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agricultural and Forest Resources
<input type="checkbox"/>	Air Quality / Greenhouse Gas Emissions	<input checked="" type="checkbox"/>	Biological Resources
<input checked="" type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Geology and Soils
<input type="checkbox"/>	Hazards and Hazardous Materials	<input type="checkbox"/>	Hydrology and Water Quality
<input type="checkbox"/>	Land Use and Planning	<input type="checkbox"/>	Mineral Resources
<input type="checkbox"/>	Noise	<input type="checkbox"/>	Population and Housing
<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities and Service Systems
<input checked="" type="checkbox"/>	Mandatory Findings of Significance		

### 3.2 AGENCY DETERMINATION

Based on the environmental impact analysis provided by this Initial Study:

- ☐ I find that the Project WOULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made that will avoid or reduce any potential significant effects to a less than significant level. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the Project MAY have a significant effect on the environment. An ENVIRONMENTAL IMPACT REPORT will be prepared.



Sarah Sugar, Environmental Scientist  
California State Lands Commission

June 6, 2013

Date

### 1 3.3 ENVIRONMENTAL CHECKLIST

#### 2 3.3.1 Aesthetics

<b>AESTHETICS – Would the Project:</b>	<b>Potentially Significant Impact</b>	<b>Less Than Significant with Mitigation</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3 3.3.1.1 Environmental Setting

4 The Project is located within agricultural lands that are used for the production of field  
5 corn, and the majority of the Project area is flat. The proposed natural gas pipeline  
6 alignment would cross both State Highway 12, adjacent to the DW 8-1 Well, and the  
7 River, near the planned northern terminus of the pipeline. State Highway 12 is  
8 approximately 6 feet higher in elevation than the surrounding agricultural fields. Levees  
9 approximately 20 feet in height are located along both the northern and southern banks  
10 of the River. HDD boring would be used to install the proposed pipeline under these  
11 topographic features.

12 The closest residence to the Project is located approximately 0.14 mile (740 feet) to the  
13 southwest of the 5-2 Line tie-in point at the northern terminus of the proposed pipeline  
14 alignment. No scenic roadways are located in the vicinity of the Project, nor is the site  
15 located within close proximity to an officially designated State scenic highway as  
16 mapped by the California Scenic Highway Mapping System. The closest designated  
17 scenic highway is State Highway 160, located approximately 5.63 miles to the west of  
18 the Project. No significant scenic resources are located at or near the Project.

19 The following photographs show views of the Project areas.



**Photograph 1**

View of existing DW 1-8 Well site and location of H12 Entry.  
View looking northeast from well site.



**Photograph 2**

View of proposed pipeline alignment on north side of State Highway 12.  
The pipeline would be installed in active agricultural fields by trenching methods.





**Photograph 3**

View of River Exit site and proposed pipeline alignment on north side of State Highway 12. The pipeline would be installed in active agricultural fields by trenching methods.



**Photograph 4**

View to the South of the Proposed Pipeline Alignment from the North Side of the Mokelumne River.



**Photograph 5**

View of tie-in point to existing 5-2 Line at the northern terminus of the proposed pipeline.  
View looking southwest of Towne existing production facility.

1    **3.3.1.2    Regulatory Setting**

2    **Federal/State**

3    There are no federal or State regulations related to aesthetics relevant to the Project.

4    **Local**

5    Sacramento County General Plan. The Sacramento County General Plan includes  
6    Conservation and Land Use Elements which address aesthetic resources in the Project  
7    area. The policies of these elements are intended to preserve and protect the scenic  
8    and historic resources within Sacramento County to the maximum extent feasible while  
9    allowing quality development in conformance with the General Plan provisions  
10   (Sacramento County 2011).

11   San Joaquin County General Plan. The San Joaquin County General Plan includes a  
12   Community Development Element which addresses aesthetic resources in the Project  
13   area. The policies of these elements are intended to preserve and protect the scenic  
14   and historic resources within San Joaquin County to the maximum extent feasible while  
15   allowing quality development in conformance with the General Plan provisions (San  
16   Joaquin County 2012). The following policies in this document apply to the Project:

- Compatibility with Adjacent Land Uses. The potential to create traffic, noise, dust, odor, and visual impacts requires that developments be carefully located and designed. Techniques that can be used to minimize the effects on adjacent land uses include the use of buffers, development conditions, industrial parks, and performance standards.
- Buffers. Buffers can be used to provide relief from the noise, dust, and visual impacts created by industrial development. Buffers can include solid fences, vegetation, or open spaces which provide room between the industrial developments and the surrounding land uses.

### 3.3.1.3 Impact Analysis

#### ***a) Have a substantial adverse effect on a scenic vista?***

The Project would involve the installation of an underground natural gas pipeline, and construction activities would be short-term and temporary in nature. Pipeline installation equipment would be located on the Project for a period of approximately 2 months, or 60 days, but would all be removed after installation activities are complete. Oil and gas exploration and production equipment and farm buildings, water tanks, and other agricultural facilities related to agricultural activities are present within the vicinity of the Project. Boat marinas are also present within the vicinity of the northern portion of the Project. Many of these agricultural and recreational facilities are similar in shape and size to the Project equipment. Therefore, given the presence of equipment would be temporary and would fit in with the surroundings, the Project is expected to have a less than significant effect on scenic vistas.

#### ***b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?***

The Project is not located within close proximity to any officially designated State scenic highway as mapped by the California Scenic Highway Mapping System. The closest designated scenic highway is State Highway 160, located approximately 5.63 miles to the west of the Project area. Therefore, the Project would not substantially damage scenic resources within a State scenic highway and no impacts related to this category from either construction or long-term operation of the Project would result.

#### ***c) Substantially degrade the existing visual character or quality of the site and its surroundings?***

Since the pipeline would be installed underground, the Project would not substantially degrade the existing visual character or quality of the site and its surroundings as part of long-term operations. The Project would result in short-term, temporary visual impacts associated with construction activity. Moreover, because all trenching and ground disturbance would take place in active corn fields, there would be no removal or

1 modification of trees, hills, vegetation or other aesthetic resources during construction.  
2 Once construction is complete, the pipeline installation equipment would be removed  
3 and there would be no visual change to existing conditions, as the proposed pipeline  
4 would be underground. Therefore, Project impacts would be less than significant.

5 ***d) Create a new source of substantial light or glare which would adversely affect***  
6 ***day or nighttime views in the area?***

7 The Project would not require the installation of any new lighting as a result of project  
8 implementation. Temporary glare may occur off of construction equipment during the  
9 installation of the proposed natural gas pipeline. However, this glare would be  
10 temporary in nature. As the pipeline would be installed under the ground surface, no  
11 new glare is expected from the operation of the proposed pipeline. No temporary  
12 lighting will be used during the installation of the Project. All construction activities would  
13 occur during daylight hours only. Therefore, the Project would have less than significant  
14 light and glare impacts.



1 **3.3.2 Agriculture and Forest Resources**

<b>AGRICULTURE AND FOREST RESOURCES -</b> Would the Project:	<b>Potentially Significant Impact</b>	<b>Less Than Significant with Mitigation</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Natural Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Resources Code § 12220, subd. (g)), timberland (as defined by Pub. Resources Code § 4526), or timberland zoned Timberland Production (as defined by Gov. Code § 51104, subd. (g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2 **3.3.2.1 Environmental Setting**

3 The Project is primarily located on active agricultural land (field corn), in areas identified  
 4 in the Sacramento County General Plan as AG 80 [minimum 80 acre parcel size], and in  
 5 the San Joaquin County General Plan as AG 40 [minimum 40 acre parcel size].

6 **3.3.2.2 Regulatory Setting**

7 The following discussion summarizes the most important federal, State, and local laws  
 8 and regulations that apply to agricultural and forestry resource protection for the Project  
 9 area.

1   **Federal**

2   No federal regulations that pertain to agricultural resources are relevant to the Project.

3   **State**

4   California Land Conservation Act (Williamson Act). The California Land Conservation  
5   Act of 1965, commonly referred to as the Williamson Act, enables local governments to  
6   enter into contracts with private landowners for the purpose of restricting specific  
7   parcels of land to agricultural or related open space use, and provides landowners with  
8   lower property tax assessments in return. Local government planning departments are  
9   responsible for the enrollment of land into Williamson Act contracts. Generally, any  
10   commercial agricultural use would be permitted within any agricultural preserve. In  
11   addition, local governments may identify compatible uses permitted with a use permit.

12   **Local**

13   San Joaquin County General Plan. The General Plan Resource Element contains  
14   policies governing the use and development of agriculture and forest resources. The  
15   following objectives and policies are relevant to the Project:

- 16       • Agricultural areas shall be used principally for crop production, ranching, and  
17       grazing. All agricultural support and non-farm uses shall be compatible with  
18       agricultural operations and shall satisfy the following criteria:
  - 19           (a) The use requires a location in an agricultural area because of unusual  
20           siting requirements, operational characteristics, resource orientation, or  
21           because it is providing a service to the surrounding agricultural area;
  - 22           (b) The operational characteristics of the use will not have a detrimental  
23           impact on the management or use of surrounding agricultural properties;
  - 24           (c) The use will be sited to minimize any disruption to the surrounding  
25           agricultural operations; and
  - 26           (d) To protect agricultural land, non-agricultural uses which are allowed in the  
27           agricultural area should be clustered, and strip or scattered development  
28           should be avoided.
  - 29           (e) Non-agricultural land uses at the edge of agricultural areas shall  
30           incorporate adequate buffers (e.g., fences and setbacks) to prevent  
31           conflicts with adjoining agricultural operations.

32   Sacramento County General Plan. The following General Plan policies related to  
33   agricultural resources are applicable to the Project.

1       • Agricultural Element

- 2           ○ AG-1 - The County shall protect prime farmlands and lands with intensive  
3           agricultural investments from urban encroachments.  
4           ○ AG-5 - Mitigate loss of prime farmlands or lands with intensive agricultural  
5           investments through CEQA requirements to provide in-kind protection of  
6           nearby farmland.  
7           ○ AG-22 - The County shall actively encourage enrollments of agricultural  
8           lands in its Williamson Act program.  
9           ○ AG-23 - Discourage property owners from filing notices of nonrenewal.  
10          ○ AG-24 - Support and promote the rescission of notices of nonrenewal and  
11          replacement of Williamson Act contracts, pursuant to the provisions of  
12          Government Code section 51254, in areas outside the Urban Services  
13          Boundary for which notices of nonrenewal have been filed.

14       • Conservation Element

- 15           ○ CO-54 - Direct development away from prime or statewide importance  
16           soils or otherwise provide for mitigation that slows the loss of additional  
17           farmland conversion to other uses.  
18           ○ CO-55 - Projects resulting in the conversion of more than 50 acres of  
19           prime or statewide in importance farmland shall be deemed to have a  
20           significant environmental effect, as defined by CEQA.

21   **3.3.2.3   Impact Analysis**

22   ***a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide***  
23   ***Importance (Farmland), as shown on the maps prepared pursuant to the***  
24   ***Farmland Mapping and Monitoring Program of the California Natural Resources***  
25   ***Agency, to non-agricultural use?***

26   The Project will take place on land designated as Prime Farmland on the 2010  
27   Sacramento and San Joaquin County Farmland Mapping and Monitoring Program  
28   Maps. The proposed natural gas pipeline would be installed under the ground surface,  
29   and therefore, would only temporarily impact these agricultural lands. Because of the  
30   trench depth, the existence of the pipeline would not interfere with post-construction  
31   agricultural uses of the land, and no long-term conversion of any farmland to non-  
32   agricultural use would occur as a result of project implementation. Agricultural uses of  
33   farmland in the Project area would only be precluded as long as construction lasts, and  
34   so the Project would have a less than significant impact on conversion of farmland.

35   ***b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?***

36   The Project is located on agricultural cropland classified as Williamson Act Prime  
37   Agricultural Lands and Agricultural Land in Non-Renewal. The Williamson Act allows  
38   county governments to enter into contracts with private landowners who agree to restrict

1 parcels of land to agricultural uses or uses compatible with agriculture for at least 10  
2 years. In return, landowners receive property tax assessments that are much lower than  
3 normal because they are based upon income derived from farming and open space  
4 uses as opposed to fair market value of the property. The proposed natural gas pipeline  
5 would be installed under the ground surface, and therefore, would only temporarily  
6 impact these agricultural lands. No long-term conversion of any farmland to non-  
7 agricultural use would occur as a result of project implementation. Installation of a  
8 natural gas pipeline within the Project is consistent with and an allowed use under the  
9 existing zoning, land use, and Williamson Act requirements, and so the impact would be  
10 less than significant.

11 ***c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined***  
12 ***in Pub. Resources Code § 12220, subd. (g)), timberland (as defined by Pub.***  
13 ***Resources Code § 4526), or timberland zoned Timberland Production (as defined***  
14 ***by Gov. Code § 51104, subd. (g))?***

15 There is no forest land located within the Project area. Therefore, the Project would not  
16 conflict with existing zoning for, or cause rezoning of, any forest land or timberland, and  
17 there would be no impact.

18 ***d) Result in the loss of forest land or conversion of forest land to non-forest use?***

19 There is no forest land located within the Project area. Therefore, the Project would not  
20 result in the loss of forest land, or conversion of forest land to non-forest use, and there  
21 would be no impact.

22 ***e) Involve other changes in the existing environment which, due to their location***  
23 ***or nature, could result in conversion of Farmland, to non-agricultural use or***  
24 ***conversion of forest land to non-forest use?***

25 The Project would take place within land designated as Prime Farmland on the 2010  
26 Sacramento and San Joaquin County Farmland Mapping and Monitoring Program  
27 Maps; however, the pipeline would be installed under the ground surface and would,  
28 therefore, only temporarily impact these agricultural lands. No long-term conversion of  
29 any farmland to non-agricultural use would occur as a result of project implementation.  
30 Therefore, impacts would be less than significant.

### 1 3.3.3 Air Quality and Greenhouse Gas (GHG) Emissions

<b>AIR QUALITY AND GREENHOUSE GAS EMISSIONS</b> – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:	<b>Potentially Significant Impact</b>	<b>Less Than Significant with Mitigation</b>	<b>Less Than Significant Impact</b>	<b>No Impact</b>
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 2 3.3.3.1 Environmental Setting

3 The Project is located on the north and south side of State Highway 12 on Bouldin  
 4 Island, San Joaquin County, and adjacent to an existing natural gas production facility  
 5 located north of the Mokelumne River on Tyler Island, Sacramento County. The Project  
 6 falls under the jurisdiction of two air districts; consequently, construction and operation  
 7 are subject to two sets of air quality regulations and requirements:

- 8 • San Joaquin Valley Air Pollution Control District (SJVAPCD) for the portion of the  
 9 Project area on Bouldin Island, which represents most of the Project and Project  
 10 emissions; and
- 11 • Sacramento Metropolitan Air Quality Management District (SMAQMD) for the  
 12 portion of the Project area on Tyler Island.

#### 13 San Joaquin County

14 San Joaquin County encompasses over 1,425 square miles. It is bordered by  
 15 Sacramento County to the north, Stanislaus County to the south, Amador and



Calaveras counties to the east, and Contra Costa and Alameda counties to the west. Incorporated areas within the County include the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Lathrop, and Escalon, with the city of Stockton as the county seat. State Route 99 (SR 99) and Interstate 5 (I-5), two of the State's major north-south roadways, pass through the County. Interstate 205 (I-205) and Interstate 580 (I-580) provide the County direct connections to the San Francisco Bay Area to the west. Major land uses include agriculture, urban residential, rural residential, commercial, industrial, rangeland, and open space/natural habitat. Major landforms in the County include the foothills of the Diablo Range in the southwest, the foothills of the Sierra Nevada in the east, and the Delta in the northwest. Air pollution in the San Joaquin Valley Air Basin (SJVAB) in general can be attributed to both human-related (anthropogenic) and natural (non-anthropogenic) activities that produce emissions. Emissions from a variety of industrial-based sources, as well as on- and off-road mobile sources, account for the most significant anthropogenic emissions in the SJVAB. Activities that tend to increase mobile activity include increases in population or general traffic activity (including automobiles, trucks, aircraft, and rail), urban sprawl (which will increase commuter driving distances), and general local land management practices as they pertain to modes of commuter transportation. These sources, coupled with geographical and meteorological conditions unique to the area, stimulate the formation of unhealthy air.

## **Sacramento County**

Sacramento County covers approximately 994 square miles of California's Central Valley. Sacramento County extends from the low delta lands between the Sacramento and San Joaquin Rivers, north to approximately 10 miles beyond the State Capitol, and east to the foothills of the Sierra Nevada. The county is about 50 miles northeast of the Carquinez Strait, a sea-level gap between the Coast Ranges and the Diablo Range. The prevailing winds are from the south, primarily because of marine breezes through the Carquinez Strait, although during winter the sea breezes diminish and winds from the north occur more frequently. Average wind speeds are about 8 miles per hour.

The climate is characterized as maritime with few extremes of heat or cold. According to the Western Regional Climate Center, Mather Airport has an average January temperature of about 46 Fahrenheit (°F) and an average July temperature of about 75°F. The average annual rainfall in the County is 19.6 inches, and precipitation occurs mostly in the winter and spring months. Episodes of poor atmospheric mixing cause inversion layers, which are formed when temperature increases with elevation above ground, or when a mass of warm dry air settles over a mass of cooler air near the ground. Surface inversions (at 0 to 500 feet) occur most often during the winter, while subsidence inversions (at 1,000 to 2,000 feet) are most frequent during the summer. Inversion layers limit vertical mixing in the atmosphere, trapping pollutants near the surface.

## 1 Global Climate Change

2 Global climate change is a change in the average weather of the earth which can be  
3 measured by wind patterns, storms, precipitation, and temperature. Scientific research  
4 has indicated that the human-related GHG emissions above natural levels are likely a  
5 significant contributor to global climate change (IPCC 2007). GHGs are gases that trap  
6 heat in the atmosphere and regulate the Earth's temperature, and include water vapor  
7 (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), chlorofluorocarbons  
8 (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF<sub>6</sub>),  
9 and ozone. The global warming potential (GWP) of these gases provides a comparison  
10 of the warming influence of different GHGs relative to CO<sub>2</sub> and allows for the calculation  
11 of a single consistent GHG emission unit: the "CO<sub>2</sub> equivalent" (CO<sub>2e</sub>).

12 In 2009, the transportation sector accounted for approximately 38 percent of the total  
13 statewide GHG emissions, thus making it the largest contributor to the total statewide  
14 emissions. Emissions from electricity generation, the second largest, accounted for 23  
15 percent of the total emissions, with almost equal contributions from in-State and  
16 imported electricity, while the industrial sector accounted for approximately 20 percent  
17 of the total in 2009. These three sectors accounted for approximately 80 percent of the  
18 statewide GHG emissions in 2009. Emissions from agriculture (7 percent), residential  
19 (6.3 percent), and commercial (3.1 percent) sectors accounted for approximately 16.5  
20 percent of the total. CH<sub>4</sub> and N<sub>2</sub>O emissions from wildfires and soil disturbances  
21 (forestry) accounted for approximately 0.04 percent of the total statewide GHG  
22 emissions. The remaining 3.5 percent of the gross emissions were mainly due to  
23 evaporative losses and use of ozone depleting substances (ODS), which could not be  
24 assigned to any specific economic sector in the inventory (CARB 2011).

25 CO<sub>2</sub> is an odorless, colorless GHG. Natural sources include decomposition of dead  
26 organic matter, respiration of bacteria, plants, animals, and fungus, evaporation from  
27 oceans, and volcanic outgassing. Anthropogenic (human caused) sources of CO<sub>2</sub>  
28 include burning fuels, such as coal, oil, natural gas, and wood. The global atmospheric  
29 concentration of CO<sub>2</sub> has increased from a pre-industrial value of about 280 parts per  
30 million (ppm) to 379 ppm in 2005. The atmospheric concentration of CO<sub>2</sub> in 2005  
31 exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) (IPCC  
32 2007).

33 Methane is a flammable gas and the main component of natural gas fuel. It has a GWP  
34 of about 21 times the GWP of CO<sub>2</sub>. This is reported in terms of CO<sub>2e</sub>. Anaerobic decay  
35 of organic matter is one natural source of methane. Geological deposits, known as  
36 natural gas fields, also contain methane, which is extracted for fuel. Other sources are  
37 from landfills, fermentation of manure, and cattle (IPCC 2007).

N<sub>2</sub>O is a colorless gas that has a GWP of about 310 CO<sub>2</sub>e. It is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) emit N<sub>2</sub>O. It is used in rocket engines, racecars, and as an aerosol spray propellant (IPCC 2007).

CFCs, which are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms, are nontoxic, nonflammable, insoluble, and chemically nonreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone, however, and their production was banned by the Montreal Protocol in 1987. HFCs are synthetic human-made chemicals that are used as a substitute for CFCs for automobile air conditioners and refrigerants. PFCs are used in aluminum production and the semiconductor manufacture industry. These various classes of fluorocarbons have GWPs between 140 CO<sub>2</sub>e and 11,700 CO<sub>2</sub>e (IPCC 2007).

SF<sub>6</sub> is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas – 23,900 CO<sub>2</sub>e. SF<sub>6</sub> is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Ozone is a GHG; however, unlike the other GHGs, ozone in the troposphere is relatively short-lived and therefore is not global in nature. According to CARB, it is difficult to make an accurate determination of the contribution of ozone precursors (nitrogen oxides [NO<sub>x</sub>] and volatile organic compounds [VOCs]) to global warming (CARB 2004).

### **3.3.3.2 Regulatory Setting**

The following discussion summarizes the most important federal, State, and local laws and regulations that apply to air quality and GHGs for the Project area.

#### **Federal and State Ambient Air Standards**

Air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State law. These regulated air pollutants are known as “criteria air pollutants” and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), VOC, NO<sub>x</sub>, sulfur dioxide, coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead are primary air pollutants. VOC and NO<sub>x</sub> form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone and nitrogen dioxide (NO<sub>2</sub>) are the principal secondary pollutants. Other pollutants, such as CO<sub>2</sub>, a natural by-product of animal respiration that is also

1 produced in the combustion process, have been linked to such phenomena as global  
2 climate change.

3 Federal Clean Air Act (FCAA) (42 United States Code [USC] 7401 et seq.). The FCAA  
4 requires the U.S. Environmental Protection Agency (EPA) to identify National Ambient  
5 Air Quality Standards (NAAQS or national standards) to protect public health and  
6 welfare. National standards have been established for ozone, CO, NO<sub>2</sub>, sulfur dioxide,  
7 PM<sub>10</sub>, PM<sub>2.5</sub>, and lead. The U.S. Supreme Court ruled on April 2, 2007 that CO<sub>2</sub> is an air  
8 pollutant as defined under the FCAA, and that EPA has the authority to regulate GHG  
9 emissions. However, there are no federal regulations or policies regarding GHG  
10 emissions applicable to the Project or alternatives under consideration. Tables 3.3.3-1  
11 and 3.3.3-2 illustrate current national and state ambient air quality standards and  
12 provide a brief discussion of the related health effects and principal sources for selected  
13 pollutants.

14 Pursuant to the 1990 FCAA Amendments (FCAAA), the EPA classifies air basins (or  
15 portions thereof) as in “attainment” or “nonattainment” for each criteria air pollutant,  
16 based on whether or not the NAAQS has been achieved. The classification is  
17 determined by comparing actual monitoring data with State and federal standards. If a  
18 pollutant concentration is lower than the standard, the area is classified as in  
19 “attainment” for that pollutant. If an area exceeds the standard, the area is classified as  
20 in “nonattainment” for that pollutant. If there are not enough data available to determine  
21 whether the standard is exceeded in an area, the area is designated “unclassified.”

22 California Clean Air Act of 1988, amended in 1992 (CCAA). The CCAA requires all air  
23 districts in the State to endeavor to achieve and maintain State ambient air quality  
24 standards for ozone, CO, sulfur dioxide, NO<sub>2</sub>, and particulate matter by the earliest  
25 practicable date. California's ambient air standards are generally stricter than national  
26 standards for the same pollutants. California also has established its own standards for  
27 sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

28 Based on pollutant levels, the 1992 amendments to the CCAA divide ozone  
29 nonattainment areas into four categories (moderate, serious, severe, and extreme) to  
30 which progressively more stringent requirements apply. An extreme ozone  
31 nonattainment area is one in which ozone concentrations were greater than 0.20 ppm  
32 during 1989-91. The 1988 CCAA, upon which the 1991 regional air quality management  
33 plan was based, specified that attainment plans for areas which could not demonstrate  
34 attainment of State standards until after December 31, 1997, must include specified  
35 emission reduction strategies and meet milestones in implementing emission controls  
36 and achieving more healthful air quality. Air quality agencies associated with the Project  
37 include the following.

- 38 • California Air Resources Board (CARB) – CARB has established standards for  
39 criteria air pollutants, known as the California Ambient Air Quality Standards

(CAAQS) that are generally more restrictive than the NAAQS. CARB has also established standards for pollutants in addition to the criteria air pollutants.

- Local Air Districts – The Project falls under the jurisdiction of two different air districts: the portion of the Project that lies within Bouldin Island and San Joaquin County falls under the SJVAPCD, while the portion within Tyler Island and Sacramento County falls under the SMAQMD. Most of the Project and Project emissions, however, are within the jurisdiction of SJVAPCD.

**Table 3.3.3-1. National Ambient Air Quality Standards<sup>a</sup>**

Pollutant	Averaging Time	Concentration
Ozone	8 Hour	0.075 ppm (147 $\mu\text{g}/\text{m}^3$ ) <sup>d</sup>
	8 Hour	9 ppm (10 $\text{mg}/\text{m}^3$ )
Carbon Monoxide	1 Hour	35 ppm (40 $\text{mg}/\text{m}^3$ )
Nitrogen Dioxide	Annual Arithmetic Mean	0.053 ppm (100 $\mu\text{g}/\text{m}^3$ )
Sulfur Dioxide	Annual Arithmetic Mean	0.03 ppm (80 $\mu\text{g}/\text{m}^3$ )
	24 Hour	0.14 ppm (365 $\mu\text{g}/\text{m}^3$ )
PM 10	Annual Arithmetic Mean	----- <sup>c</sup>
	24 Hour	150 $\mu\text{g}/\text{m}^3$
PM 2.5 (1997 Standard)	Annual Arithmetic Mean	15 $\mu\text{g}/\text{m}^3$
	24 Hour	65 $\mu\text{g}/\text{m}^3$
PM 2.5 (2006 Standard)	Annual Arithmetic Mean	15 $\mu\text{g}/\text{m}^3$
	24 Hour	35 $\mu\text{g}/\text{m}^3$

ppm=parts per million       $\text{mg}/\text{m}^3$ =milligrams per cubic meter       $\mu\text{g}/\text{m}^3$ =micrograms per cubic meter

<sup>a</sup> See <http://epa.gov/air/criteria.html>

<sup>b</sup> 1-Hour ozone standard revoked effective June 15, 2005.

<sup>c</sup> Annual PM 10 standard revoked effective December 18, 2006.

<sup>d</sup> EPA finalized the revised (2008) 8-hour ozone standard of 0.075 ppm on March 27, 2008. The 1997 8-hour ozone standard of 0.08 ppm has not been revoked. In the January 19, 2010 Federal Register, EPA proposed to revise the 2008 ozone NAAQS of 0.075 ppm to a NAAQS in the range of 0.060 to 0.070 ppm. EPA expects to finalize the revised NAAQS, which will replace the 0.075 ppm NAAQS, by July 29, 2011. More information is available here.

<sup>e</sup> On October 15, 2008, EPA strengthened the lead standard.



<b>Table 3.3.3-2. California Ambient Air Quality Standards<sup>a</sup></b>		
<b>Pollutant</b>	<b>Averaging Time</b>	<b>Concentration</b>
Ozone	8 Hour	0.070 ppm (137 $\mu\text{g}/\text{m}^3$ )
	1 Hour	0.09 ppm (180 $\mu\text{g}/\text{m}^3$ )
Carbon Monoxide	8 Hour	9 ppm (10 $\text{mg}/\text{m}^3$ )
	1 Hour	20 ppm (23 $\text{mg}/\text{m}^3$ )
Nitrogen Dioxide	Annual Arithmetic Mean	0.030 ppm (56 $\mu\text{g}/\text{m}^3$ )
	1 Hour	0.18 ppm (338 $\mu\text{g}/\text{m}^3$ )
Sulfur Dioxide	24 Hour	0.04 ppm (105 $\mu\text{g}/\text{m}^3$ )
	1 Hour	0.25 ppm (655 $\mu\text{g}/\text{m}^3$ )
PM 10	Annual Arithmetic Mean	20 $\mu\text{g}/\text{m}^3$
	24 Hour	50 $\mu\text{g}/\text{m}^3$
PM 2.5	Annual Arithmetic Mean	12 $\mu\text{g}/\text{m}^3$
	24 Hour	none
ppm=parts per million	$\text{mg}/\text{m}^3$ =milligrams per cubic meter	$\mu\text{g}/\text{m}^3$ =micrograms per cubic meter
a See <a href="http://www.arb.ca.gov/research/aaqs/aaqs2.pdf">http://www.arb.ca.gov/research/aaqs/aaqs2.pdf</a>		

## 1 Regional and Local

2 SJVAPCD and SMAQMD are agencies responsible for protecting the public health and  
 3 welfare through the administration of federal and State air quality laws and policies.  
 4 Included in the SJVAPCD and SMAQMD tasks are the monitoring of air pollution, the  
 5 preparation of the counties' portions of the State Implementation Plan (SIP), and the  
 6 promulgation of rules and regulations. The SIP includes strategies and tactics to be  
 7 used to attain and maintain acceptable air quality in the counties. The rules and  
 8 regulations include procedures and requirements to control the emission of pollutants  
 9 and prevent significant adverse impacts.

10 San Joaquin Valley Attainment Designation. The SJVAPCD regional air quality  
 11 monitoring network provides information on existing ambient concentrations of criteria  
 12 air pollutants, including in San Joaquin County. The SJVAB remains in "nonattainment"  
 13 for ozone,  $\text{PM}_{10}$ , and  $\text{PM}_{2.5}$ . Table 3.3.3-3 reflects ambient air standard attainment  
 14 designation for SJVAPCD. The SJVAPCD does not have a concentration-based  
 15 threshold. Rather, their thresholds are in terms of tons/year.

Table 3.3.3-3. San Joaquin Valley Attainment Status		
Pollutant	Designation/ Classification	
	Federal Standards (a)	State standards (b)
Ozone - One hour	No Federal Standard <sup>f</sup>	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme <sup>c</sup>	Nonattainment
PM 10	Attainment <sup>c</sup>	Nonattainment
PM 2.5	Nonattainment <sup>d</sup>	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
<p><sup>a</sup> See 40 CFR Part 81</p> <p><sup>b</sup> See CCR Title 17 Sections 60200-60210</p> <p><sup>c</sup> On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.</p> <p><sup>d</sup> The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).</p> <p><sup>e</sup> Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).</p> <p><sup>f</sup> Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.</p>		

1 Sacramento Metropolitan AQMD Attainment Designation. Sacramento County is  
2 designated as a nonattainment area under national and state ambient air quality  
3 standards (AAQS) for ozone (serious nonattainment status), PM<sub>10</sub> (moderate  
4 nonattainment status) and PM<sub>2.5</sub>. The urbanized portion of Sacramento is also within a  
5 carbon monoxide maintenance area. The SMAQMD has published significance criteria  
6 and analysis methodologies to determine impacts related to these emissions. Ozone is  
7 assessed based on the presence of NO<sub>x</sub> (ozone precursors), and the significance  
8 threshold is 85 pounds per day. The significance threshold for particulate matter (PM) is  
9 based on the CAAQS, and is 50 micrograms per cubic meter (µg/m<sup>3</sup>). SMAQMD also  
10 has standard rules and regulations to reduce both particulate matter and ozone  
11 precursor emissions. Sacramento County is designated in attainment or unclassified for  
12 all remaining pollutants. Table 3.3.3-4 presents the SMAQMD ambient air quality  
13 standard attainment designation.

<b>Table 3.3.3-4. Sacramento Metropolitan AQMD Attainment Status</b>		
<b>Pollutant</b>	<b>California Standard</b>	<b>Federal Standard</b>
Ozone	Non-Attainment Classification = Serious (1 hour and 8 hour Standards)	Non-Attainment, Classification = Severe -15* (8 hour Standard)
PM10	Non-Attainment (24 hour Standard and Annual Mean)	Non-Attainment**, Classification = Moderate (24 hr std)
PM2.5	Non-Attainment (Annual Standard)	Non-Attainment (24 hour Standard)
Carbon Monoxide	Attainment (1 hour and 8 hour Standards)	Attainment (1 hour and 8 hour Standards)
Nitrogen Dioxide	Attainment (1 hour Standard)	Attainment (Annual Standard)***
Sulfur Dioxide	Attainment (1 hour and 24 hour Standards)	Attainment (3 hour, 24 hour, and Annual Standards)****
<p>* A formal request for voluntary reclassification from “serious” to “severe” for the 8-hour ozone nonattainment area with an associated attainment deadline of June 15, 2019, was submitted from the Air Resources Board to EPA on February 14, 2008. EPA approved the request effective June 4, 2010.</p> <p>** Air Quality meets Federal PM-10 Standards. The AQMD must request redesignation to attainment and submit a maintenance plan to be formally designated to attainment.</p> <p>*** NO2 - New 1-hour standard 100ppb, effective 4/12/2010 (Designation expected 4/12/2011.)</p> <p>**** SO2 - New 1-hour standard 75ppb, effective 8/23/2010</p> <p>California Area Designations based upon AQ Data collected during 2001-2003.</p>		

**1** Sacramento and San Joaquin County General Plans. Both the Sacramento and San  
**2** Joaquin County General Plans focus primarily on reducing air pollution through better  
**3** planning for future development, primarily housing development. Issues related to  
**4** stationary emission sources are delegated to the air districts. Neither General Plan has  
**5** any thresholds of significance for air pollutants, nor does either Plan provide any  
**6** guidance on controlling emissions from stationary sources.

## **7 Greenhouse Gas Regulations**

**8** Executive Order S-3-05. This Executive Order proclaims that California is vulnerable to  
**9** the impacts of climate change. It declares that increased temperatures could reduce the  
**10** Sierra Nevada snowpack, further exacerbate California’s air quality problems, and

1 potentially cause a rise in sea level. To combat those concerns, the Executive Order  
2 established statewide GHG emission targets. Specifically, emissions are to be reduced  
3 to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990  
4 level by 2050.

5 Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32). In September 2006, AB  
6 32 became law. AB 32 made CARB responsible for monitoring and reducing GHG  
7 emissions in the State and required CARB to establish a statewide GHG emissions cap  
8 for 2020 that is based on 1990 emissions levels. In December 2008, CARB adopted its  
9 AB 32 Climate Change Scoping Plan (Scoping Plan), which functions as a roadmap of  
10 CARB's plans to achieve GHG reductions in California required by AB 32 through  
11 subsequently enacted regulations (CARB 2009). The Scoping Plan contains the main  
12 strategies California will implement to reduce CO<sub>2</sub>e emissions by 169 million metric  
13 tons (MMT), or approximately 30 percent, from the State's projected 2020 emissions  
14 level of 596 MMT of CO<sub>2</sub>e under a business-as-usual scenario. The Scoping Plan also  
15 breaks down the amount of GHG emissions reductions CARB recommends for each  
16 emissions sector of the State's GHG inventory. The Scoping Plan does not include any  
17 direct discussion about GHG emissions generated by construction activity.

18 Senate Bill (SB) 97. SB 97 acknowledges that climate change is a prominent  
19 environmental issue that requires analysis under CEQA. This bill directed the State  
20 Office of Planning and Research (OPR) to prepare, develop, and transmit to the  
21 California Natural Resources Agency guidelines for the feasible mitigation of GHG  
22 emissions or the effects of GHG emissions, as required by CEQA by July 1, 2009. The  
23 Natural Resources Agency adopted those guidelines on December 30, 2009, and the  
24 guidelines became effective March 18, 2010. These amendments to the State CEQA  
25 Guidelines establish a framework for addressing global climate change impacts in the  
26 CEQA process, and include revisions to the Environmental Checklist Form (Appendix  
27 G) as well as to the Energy Conservation appendix (Appendix F). A new section was  
28 also added to the State CEQA Guidelines (§ 15064.4) that provides an approach to  
29 assessing impacts from GHGs.

### 30 **3.3.3.3 Impact Analysis**

31 ***a) Conflict with or obstruct implementation of the applicable air quality plan?***

32 ***b) Violate any air quality standard or contribute substantially to an existing or***  
33 ***projected air quality violation?***

34 ***c) Result in a cumulatively considerable net increase of any criteria pollutant for***  
35 ***which the Project region is nonattainment under an applicable federal or State***  
36 ***ambient air quality standard (including releasing emissions which exceed***  
37 ***quantitative thresholds for ozone precursors)?***

The Project lies under the jurisdiction of two separate air quality management districts, each with its own different significance criteria. Because of the dual jurisdiction, the Project would be considered to have a significant impact on air quality if the emissions sum for any criteria pollutant exceeds either air district's threshold of significance for that pollutant (criteria are identified in Tables 3.3.3-5 and 3.3.3-6 and discussed below).

## Sacramento Metropolitan AQMD

The SMAQMD (1994) Clean Air Plan, or SIP, includes assumptions and allowances for growth and development in the region and details control measures and Best Management Practices that must be used for the region to make progress toward attainment. Updates to the 1994 Clean Air Plan include the *State of Progress Plan* and *2011 Reasonable Further Progress Plan*, both of which address attainment of the federal 8-hour ozone standard. The *2008 Triennial Report* and the *2007 Annual Progress Report* address the attainment of the state ozone standard. The current SIP and 2035 Metropolitan Transportation Plan (MTP) published by the Sacramento Area Council of Governments (SACOG) both use the same growth assumptions.

SMAQMD has also adopted significance thresholds for projects within the District that are subject to CEQA, as published in the December 2009 SMAQMD's *Guide to Air Quality Assessment in Sacramento County*. Projects that exceed the thresholds would have the potential to obstruct the success of the regional ozone attainment plans and, therefore, would be considered significant and require mitigation. The adopted significance thresholds for criteria pollutants of the greatest concern in the Sacramento area (those for which the region is in nonattainment) include carbon monoxide concentrations that exceed the 1-hour state ambient air quality standard (i.e., 20.0 ppm) or the 8-hour state ambient standard (i.e., 9.0 ppm). SMAQMD thresholds of significance for selected criteria pollutants are summarized in Table 3.3.3-5.

**Table 3.3.3-5**  
**Thresholds of Significance for SMAQMD**

Criteria Pollutant	Threshold of Significance	
	Construction (short-term)	Operational (long-term)
Reactive Organic Gas ( <b>ROG</b> )	none	65 lb/day
Nitrogen Oxides ( <b>NO<sub>x</sub></b> )	85 lb/day	65 lb/day
Particulates ( <b>PM<sub>10</sub></b> )	50 µg/m3 24-hour standard; * 20 µg/m3 Annual Arithmetic Mean	
Particulates ( <b>PM<sub>2.5</sub></b> )	12 µg/m <sup>3</sup> (Annual Arithmetic Mean)	
Toxic Air Contaminants ( <b>TAC</b> )	Public Risk < 10 in a million Prioritization Scope < 10	

\* Equal to or greater than 5 percent of the CAAQS at offsite receptors. The SMAQMD holds that if project emissions of NO<sub>x</sub> and ROG are below 65 lb/day, then the project would not threaten violations of the PM<sub>10</sub> CAAQS

Source: <http://airquality.org/ceqa/cequguideupdate/Ch2TableThresholds.pdf>.



## San Joaquin Valley APCD

The SJVAPCD has prepared an Air Quality Attainment Plan to enable the San Joaquin Valley to attain air quality standards by the earliest practicable date. The Attainment Plan covers the Central Valley from San Joaquin to Kern County. Short-term emissions are anticipated as part of the Project, but with measures included in the Project description the impact will be less than significant. Particulate matter emissions can be expected to occur during trenching and backfilling. The SJVAPD requires preparation and implementation of a Dust Control Plan as specified in Regulation VIII, Rule 8021, Section 6.3.1 for non-residential projects that disturb 5 or more acres or move, deposit, or relocate more than 2,500 cubic yards per day of bulk materials on at least 3 days; however, because the Project would not exceed these thresholds, a Dust Control Plan will not be required. Typical equipment used for this Project may include front-end loaders, backhoe, trencher, bore equipment, welders and grader (see Table 2.3-1). The Project would be subject to SJVAPCD regulations related to control of PM emissions.

Thresholds of significance established by SJVAPCD as criteria for determining the significance of air quality impacts consider a Project's short-term emissions separately from its long-term emissions. Short-term emissions, which are mainly related to the construction phase of the project and are recognized to be short in duration, consist mainly of exhaust emissions (NO<sub>x</sub> and PM) from construction equipment and other mobile sources, and PM emissions from earth-moving activities. Long-term emissions are primarily related to activities that will occur indefinitely as a result of project operations. Table 3.3.3-6 summarizes adopted thresholds of significance for SJVAPCD.

**Table 3.3.3-6**  
**Thresholds of Significance for SJVAPCD**

Criteria Pollutant	Threshold of Significance
Reactive Organic Gas (ROG)*	10 tons/year
Nitrogen Oxides (NO <sub>x</sub> )*	10 tons/year
Toxic Air Contaminants (TAC)	Public Risk < 10 in a million Prioritization Scope < 10
*Threshold applies to both construction and operational emissions. Source: <a href="http://www.valleyair.org/transportation/ceqaanalysislevels.htm#thresholds">www.valleyair.org/transportation/ceqaanalysislevels.htm#thresholds</a> .	

Three Rivers proposes to install a welded steel natural gas pipeline from an existing natural gas well site located on the south side of State Highway 12 on Bouldin Island, San Joaquin County, and an existing natural gas production facility located north of the River on Tyler Island, Sacramento County. The Project would consist of three phases:

- Phase 1, Bore Under State Highway 12 (estimated 2 days duration)
- Phase 2, Bore Under Mokelumne River (estimated 14 days duration)
- Phase 3, Trenching and Pipeline Installation (estimated 12 days duration)

1 Equipment that will be used during these phases is summarized in Table 3.3.3-7.

2 **Table 3.3.3-7**  
3 **List of Anticipated Equipment for Project by Phase**

Bore Under State Highway 12				
Equipment Type	Manufacturer	Quantity	Total Hours/day	# Days
Excavator (Class 320 CL)	Hitachi	1	10	1
Loader Backhoe (CAT 420D)	Case	1	8	2
Directional Drill (DD 140D) 300 hp	American	1	10	2
Mud Unit 185 hp	Augers	1	10	2
Crawler Dozer D-5 LGP	American Augers Caterpillar	1	8	1
Mobile Sources	# Trips per Day		Roundtrip Miles per Trip	
Vacuum Truck (2)	1		25	
Passenger Car/Pickup Truck (1) Roundtrip	1		25	
Bore Under Mokelumne River				
Equipment Type	Manufacturer	Quantity	Total Hours/day	# Days
Excavator (Class 320 CL) (2)	Hitachi	2	10	4
Loader Backhoe (CAT 420D)	Case	1	10	14
Directional Drill (DD 140D) 300 hp	American	1	10	10
Mud Unit 185 hp	Augers	1	10	10
Crawler Dozer D-5 LGP	American Augers Caterpillar	1	10	4
Mobile Sources	# Trips per Day		Roundtrip Miles per Trip	
Vacuum Truck (2)	2		65	
Passenger Car/Pickup Truck (1)	1		65	
Roundtrip Boat (1)	2		4	
Trenching and Pipeline Installation				
Equipment Type	Manufacturer	Quantity	Total Hours/day	# Days
Excavator (Class 320CL) (2)	Hitachi	2	10	4
Loader Backhoe (CAT 420D)	Case	1	10	12
Side Boom Tractors - 2	Case	1	10	8
Crawler Dozer D-5 LGP (2)	Caterpillar	2	10	6
Trencher	unknown	1	10	4
Pipe Rollers	unknown	2	10	1
Mobile Sources	# Trips per Day		Roundtrip Miles per Trip	
Boom Truck	1		45	
Welding Truck	1		65	
Vacuum Truck	2		65	
Pick-Up Truck	4		65	
ATV	1		1	

Construction is scheduled to take place during the summer/fall of 2013, and is expected to be complete within 6 weeks (1.5 months). Including mobilization and demobilization of equipment and personnel, and site restoration, Project activities would require 2 months. All construction activities would take place within private agricultural lands outside of the River, its levees, and any agricultural drainage ditches containing wetlands. The Project would take place completely within active agricultural fields and within private dirt roadways. A corridor approximately 15 feet wide would be used for conducting construction activities outside of the proposed bore entry and exit points.

## Project Criteria Air Pollutant Emissions

Criteria pollutant emissions were estimated using Road Construction Emissions Model, Version 6.3.2 software, which is recommended by both the SMAQMD and the SJVAPCD for use in calculating air emissions for this type of project. Criteria pollutant emissions for the project were estimated based upon lists of equipment for the Project phases. Total surface disturbance for the Project would be 0.5 acre. Tables 3.3.3-8 and 3.3.3-9 summarize daily and annual construction-related emissions that would be released from each Project phase. Detailed calculations are presented in Appendix E.

**Table 3.3.3-8**  
**Summary of Daily Construction-Related Emissions**

Project Phase	ROG (lbs/day)	NO <sub>x</sub> (lbs/day)	PM <sub>10</sub> (lbs/day)	PM <sub>2.5</sub> (lbs/day)
Bore Under Highway 12	2.5	20.0	10.5	2.6
Bore Under River	3.6	27.2	11.3	3.3
Trenching/Installation	4.5	33.1	4.5	1.9
Total	10.6	80.3	26.3	7.8
Exceeds Threshold?	No	No	No	No

**Table 3.3.3-9**  
**Summary of Annual Construction-Related Emissions\***

Project Phase	ROG (ton/yr)	NO <sub>x</sub> (ton/yr)	PM <sub>10</sub> (ton/yr)	PM <sub>2.5</sub> (ton/yr)
Bore Under Highway 12	0.04	0.04	0.04	0.04
Bore Under River	0.04	0.1	0.1	0.1
Trenching/Installation	0.04	0.2	0.04	0.04
Total	0.12	0.34	0.18	0.18
Exceeds Threshold?	No	No	No	No

\*Emissions calculated as 0.0 ton per year with the ROADWAY Model are reported as 0.04 ton/year. (This note is to inform the reader that the Roadway Model used in these calculations gives emissions to the nearest tenth of a ton (0.1 ton). Any emissions below 0.05 ton are reported as 0.0 ton. In such cases, emissions are conservatively reported as 0.04 ton.)

Both daily and annual emissions would be below the thresholds of significance presented in Tables 3.3.3-5 and 3.3.3-6 for SMAQMD and SJVAPCD. After completion of the Project, the construction area would be graded and restored. After restoration, the pipeline would operate consistent with 40 CFR Part 191 procedures. There would not be any operational emissions. Therefore, pursuant to SMAQMD and SJVAPCD guidance, the Project's short-term and long-term emissions would not conflict with or obstruct implementation of the applicable air quality plan, violate or contribute substantially to a violation of relevant air quality standards, or result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment, and impacts would be less than significant.

**d) Expose sensitive receptors to substantial pollutant concentrations?**

**Criteria Air Pollutant Concentrations**

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive receptors are defined as locations with human populations and where there is a reasonable expectation of continuous human exposure according to the averaging period for the AAQS. The most sensitive portions of the population are children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. The closest residence to the proposed pipeline route is located approximately 740 feet to the southwest of the Project area.

Project activities would release pollutants into the localized area of the Project; however, these pollutants would disperse substantially prior to reaching any sensitive receptor. Due to the distance between the Project and the nearest sensitive residential receptor to the Project area, and to the fact that Project emissions are below both SMAQMD's and SJVAPCD's thresholds of significance as discussed in above in Responses 3.3.3 a-c, the Project is not expected to subject sensitive receptors to substantial pollutant concentrations.

**Toxic Air Pollutants**

The main toxic air pollutant released from this project would be diesel particulate matter (DPM) from equipment. To assess if the release of DPM would pose a health risk to individuals living near the site, a risk prioritization score was calculated based on the Air Toxics "Hot Spots" and Information Act of 1987. This project is ranked as "Medium" for receptors located within 100 meters (328 feet) from the construction area and "Low" for all other locations greater than 100 meters. Therefore, the impacts from release of toxic air pollutants would be less than significant. A copy of the risk prioritization spreadsheet

is provided in Appendix E. For the current project, the amount of DPM that would be released is estimated to be 38 pounds. A breakdown of DPM emissions by Phase is shown in Table 3.3.3-10.

**Table 3.3.3-10**  
**Breakdown of Diesel Particulate Emissions by Phase**

Project Phase	Exhaust PM <sub>10</sub> (lbs/day)	Phase Duration (days)	Total (lbs)
Bore Under Highway 12	0.9	2	1.8
Bore Under River	1.3	14	18.2
Trenching/Installation	1.5	12	18.0
Total	3.7	28	38.0

Note: Exhaust PM-10 emission rates are calculated using the ROADWAY model.

**e) Create objectionable odors affecting a substantial number of people?**

Project activities may create odors, but they would only be perceptible close to the Project area, which is remote and rural. Due to the distance of the Project area from the nearest residence, the Project is not expected to create objectionable odors that would be noticeable at this residence, and impacts from odors would be less than significant.

**f) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

**g) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

The Project would release GHG emissions during the construction phase. These would be temporary emissions and would occur over 2 months. Operation of the pipeline would not result in additional GHG emissions, as no new infrastructure with the potential to release emissions is proposed.

Emissions calculations to determine GHGs emitted by the Project were performed using Road Construction Emissions Model, Version 6.3.2 software, which is recommended by both the SJVAPCD and SMAQMD for use in emissions calculations for this type of project. This program determined that CO<sub>2</sub> and trace amounts of NO<sub>2</sub> and CH<sub>4</sub> would be released during the fuel combustion process. However, these constituents would contribute less than 1 percent to the overall GHG budget. Of the three types of GHG released from combustion of diesel, N<sub>2</sub>O and CH<sub>4</sub> would account for less than 1 percent of the total. CO<sub>2</sub> would constitute the remaining 99 percent.

GHG emissions for the project were estimated based on lists of equipment for each phase of the Project and the corresponding equipment use assumptions provided by Three Rivers. Equipment proposed for use during the Project is found in Table 3.3.3-9.



An estimated total 62.21 tons of GHG emissions would be released during the construction phase. A breakdown of emissions by phase is summarized in Table 3.3.3-11. Emissions of both CO<sub>2</sub> and CO<sub>2</sub>e are presented. Calculation of GHG emissions is provided in Appendix E.

**Table 3.3.3-11**  
**Summary of GHG Emissions\***

Project Phase	CO <sub>2</sub> (tons/yr)	Ratio <sup>1</sup> CO <sub>2</sub> e/CO <sub>2</sub>	CO <sub>2</sub> e (tons/yr)
Bore Under Highway 12	2.10	1.0034	2.11
Bore Under River	19	1.0034	19
Trenching/Installation	41	1.0034	41.14
<b>Project Total</b>	<b>62.0</b>		<b>62.21</b>

\* This table presents a summary of emissions of both CO<sub>2</sub> alone and total GHGs (CO<sub>2</sub> + N<sub>2</sub>O + CH<sub>4</sub>) in terms of CO<sub>2</sub>e.

Neither SMAQMD nor SJVAPCD have established thresholds of significance for short-term construction-related GHG emissions. Therefore, to place the project GHG emissions into perspective, expected Project emissions were compared with total GHG emissions in Sacramento and San Joaquin Counties. Moreover, the EPA considers a significant GHG source to be 25,000 metric tons (MT) CO<sub>2</sub>e per year, and requires such sources to report their GHG emissions. Similarly, under California's new cap and trade program, sources of 25,000 MT CO<sub>2</sub>e per year or greater will be subject to the cap and trade provisions. Because the Project's estimated 62.21 MT per year would be limited to one year, would be significantly less than EPA's threshold of significant GHG sources, and would constitute less than 0.001 percent of either county's annual GHG emissions (see Table 3.3.3-12), the Project's impact from GHGs would be less than significant.

**Table 3.3.3-12**  
**County and State GHG Emissions**

Source of GHG Emissions	Annual Emissions of CO <sub>2</sub> (Metric tons/yr)
Sacramento County (2005)	13,938,537
San Joaquin County (2005)	6,563,888
State of California (2002 to 2004)	565,000,000
Estimated Project Emissions	62.21
Project Emissions as % of San Joaquin County Emissions	0.00094%
Project Emissions as % of Sacramento County Emissions	0.00045%
Project Emissions as % of State of California Emissions	0.00001%